Inventory, Treatment and Management
of
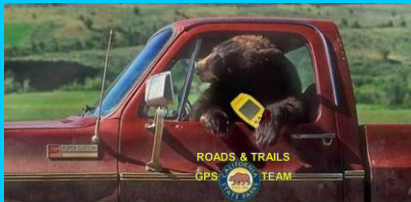**State Park Transportation Systems**

Workshop Objectives

- Process Based Training
- Understand How Consistent Inventory Procedures Assists Data Management
- Not a GPS/Training
- Not a Access Training
- Support Your Existing Road and Trail Inventory Management
- CD Provided

A Geographic Information System
of Data Management of Roads and Trails
in California State Parks

A Project Jointly Managed by California State Parks
&
California Geologic Survey

Inventory, Treatment and Management
of
State Park Transportation Systems

Funding Partners

|	
Mineral Management Service	$722,000
RMD Division – MCOP	$383,515
Law Enforcement , Emergency Services Division	$100,000
Planning Division -- Road & Trail Plans	$65,000
Facilities Management Division – Roads Funding	$75,000

Pilot Park Units

Mount Diablo
Humboldt Redwoods
Donner Memorial
Castle Rock
Red Rock Canyon
Sonoma Coast
Cuyamaca
Folsom Lake
Crystal Cove
SMMNRA Parks

Program Deliverables

(1) Base Map to DPR GIS Standards
(2) Detailed GIS Based Inventory
(3) CAMP/PID Budget Data
(4) Road &Trail Plans
(5) Demonstration Project s

State Park Roads and Trails

- Are Constructed by State Parks
- Inherited from Past Land Use
- Adopted User Created Trails
- Non – System User Created Trails

Workflow for Roads and Trails Pilot Projects
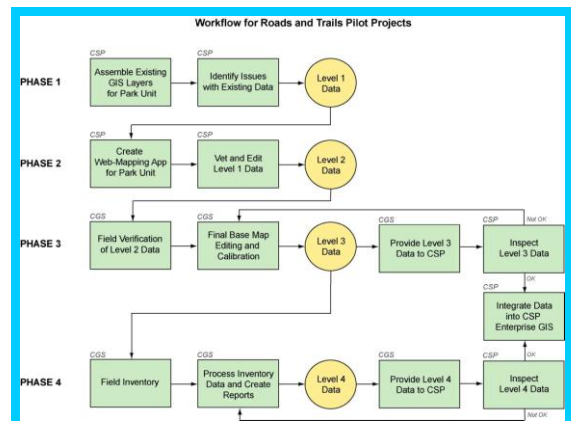
Organize Lineal Facilities on the Land Base by Accurate Mapping

- Assemble Existing GIS Layers
  - Segmentation
  - Categorization
  - Classification

GIS Data is Gathered from the Best Available Source

Data Sources

GPS

GPS Data
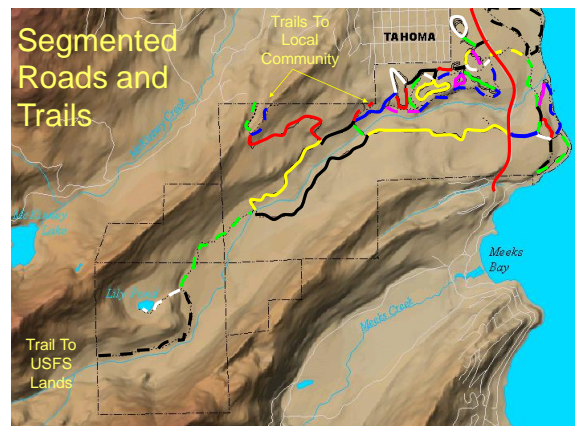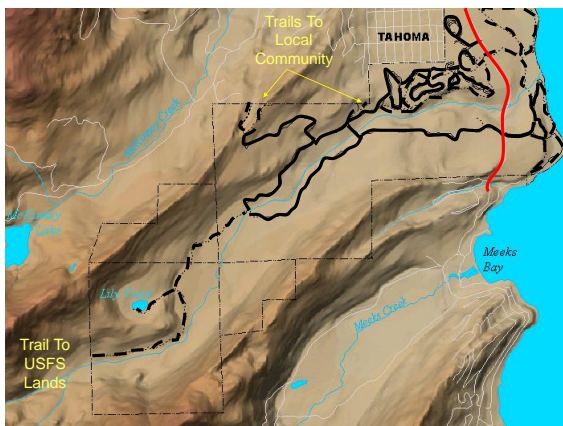(Not All Created Equal)

Knowledgeable Park Staff Input

Dynamic Segmentation or Lineal Referencing of Roads and Trails

- Segment Roads and Trails at Intersections or Junctions with Other Roads or Trails

- Segment where the Class, Construction Type or Use Type changes

- Don't create a new segment unless a route extends at least 100 ft.

Trails To Local Community

TAHOMA

Trail To USFS Lands

Meeks Bay

Segmented Roads and Trails

Trails To Local Community

TAHOMA

Trail To USFS Lands

Meeks Bay

Overview of the GIS Base Map

- Our Goal is to Create Two GIS Based Outcomes
  1. "Transportation" Layer
     - All Facility Roads and Trails Transportation Elements to the Public
     - Sometimes a Dirt Road is Used by the Public as a Trail
     - A Paved Road Route May be Accessible and Part of a Path of Travel
     - A Pave Trail May be Primarily Used as a Bike Trail But it is Driven on By Park Staff

Overview of the GIS Base Map

- Our Goal is to Create Two GIS Based Outcomes
  2. A "Facility" Layer
     - Roads and Trails Information Grouped By Their Respective Construction Type, Classification and Facility Number
     - This Facility Layer is Used for Budgeting, Maintenance and Administrative Management
     - Attribute Assignment Auto Creates Facility Numbers

State Park Roads and Trails

- If the Route Accommodates or was Built for Vehicle access, it is a Road.
  - The Roads Class has Three Subclasses: Road, Vehicle Bridge, and Parking
  - Roads can have Trail Uses
    - Trail Use may even be the Primary Use for a Road Segment

State Park Roads and Trails

- Some Trails are on Abandoned Roads
  - If Vehicle Access is No Longer Allowed, it is still *a Road* and Designated as a "Trail on Old Road"

Core Data or Attributes are Assigned to Each Trail Segment

|	
ROUTECLASS	*System or Non System*
ROUTENAME	*Trail Name*
ALTNAME	*Alternate Name*
ROUTECAT	*Trail Classification*
ROUTETYPE	*Surface Material*
ROUTEDES	*Accessible/Non Accessible*
TRLDES	*Trail User Types Allowed*
OTHERDES	*Width*
SOURCE	*Digital Data Source*
SRC_DATE	*Source Date*

Core Data or Attributes are Assigned to Each Road Segment

|	
ROUTECLASS	*System or Non System*
FCC	*Number of Lanes*
ROUTENAME	*Road Name*
ALTNAME	*Alternate Name*
ROUTECAT	*Public/Service/Trail on Road*
ROUTETYPE	*Surface Material*
ROUTEDES	*Fire Break/Motorized Rec*
TRLDES	*Trail User Types Allowed*
OTHERDES	*Accessible/Not Accessible*
SOURCE	*Digital Data Source*
SRC_DATE	*Source Date*

California State Parks Roads and Trails Data Model

Attributes for each Subtype Controlled by Domain Lookup Tables

- Ease of Entry whether using GPS or Desktop computer.
- Reduces Potential for Data Entry Errors.
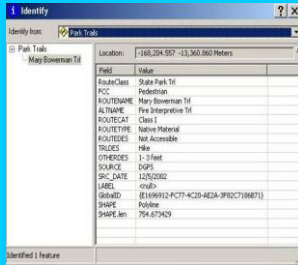
Web Based Map Attribute Assignments
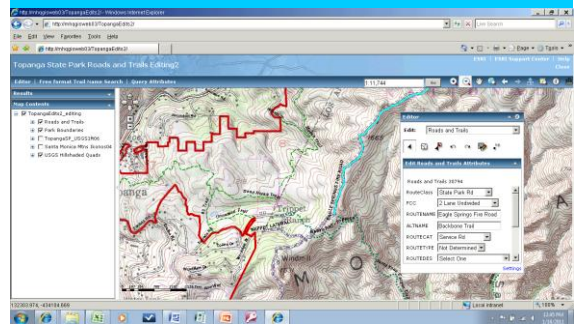
Data Attribute Establishment, Gathering and Analysis

- Collaborative Effort
  - Resources of Visitor Services, Maintenance, Cultural and Natural Resources
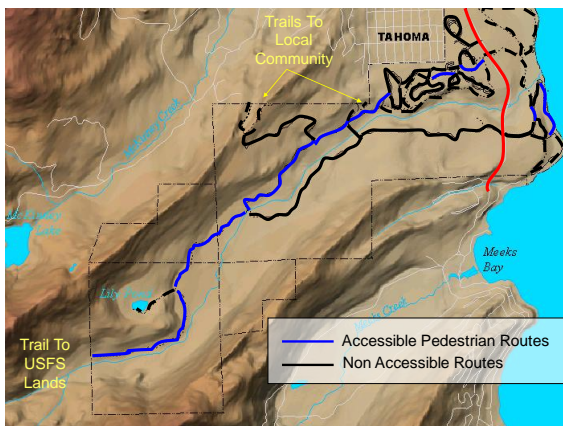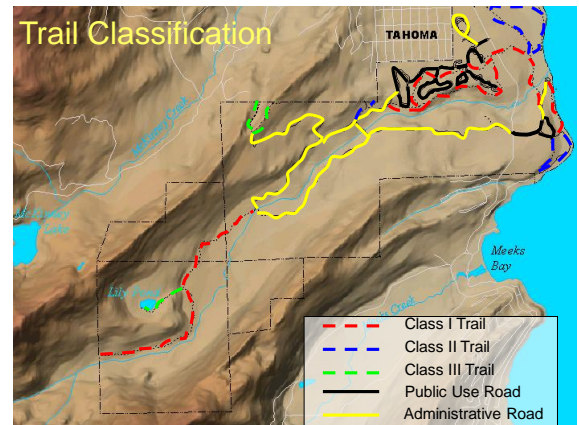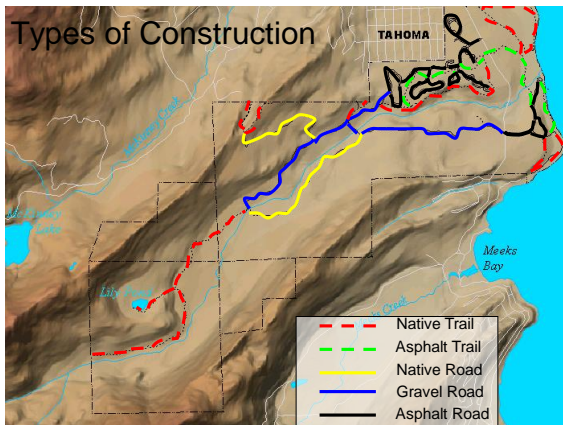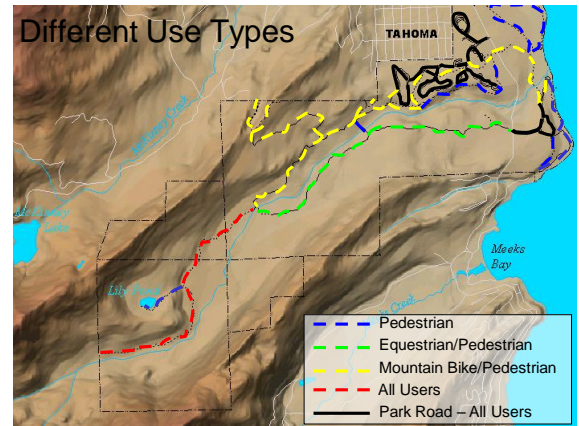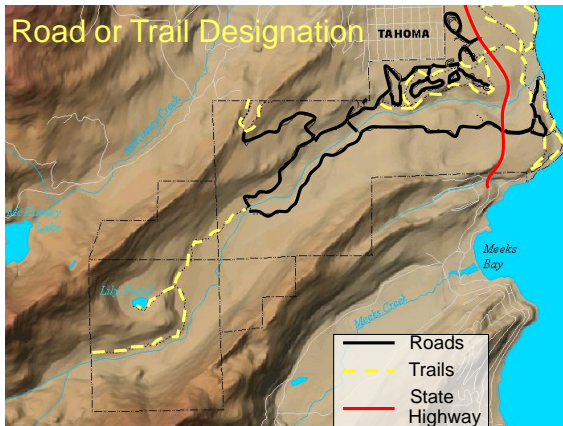

Trail Summary by Facility Number

FacNum	Seg_ID	Length_Feet	Length_Miles
Class I Pedestrian Trail			
339-F-1-01-0-001			
		14,080.96	2.67
Class I Pedestrian Accessible Trail			
339-F-1-01-5-001			
		5,600.00	1.06
Class III Pedestrian Trail			
339-F-3-01-0-001			
		1,890.02	0.36
Class I Multiple Use Trail			
339-F-1-04-0-001			
		18,540.14	3.51
Class I Multiple Use Accessible Trail			
639-F-1-04-5-001			
		11,615.44	2.20
	Grand Total:	51,726.55	9.80

Road Summary by Facility Number

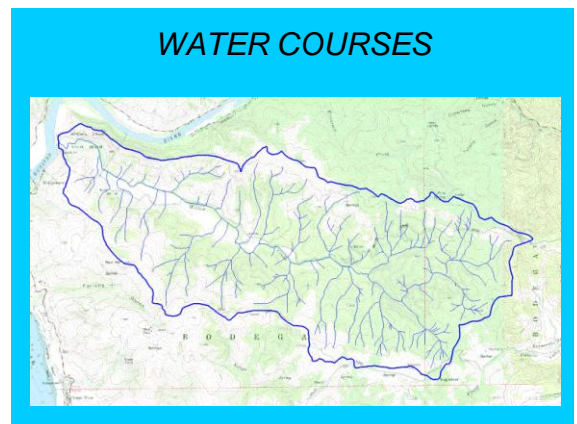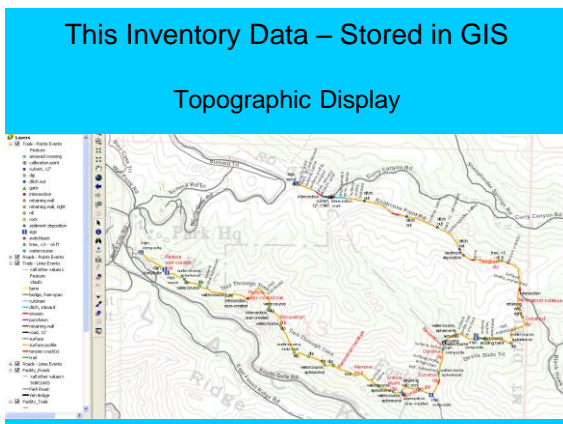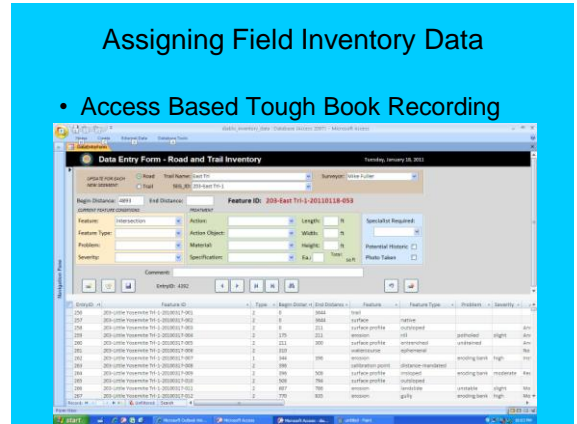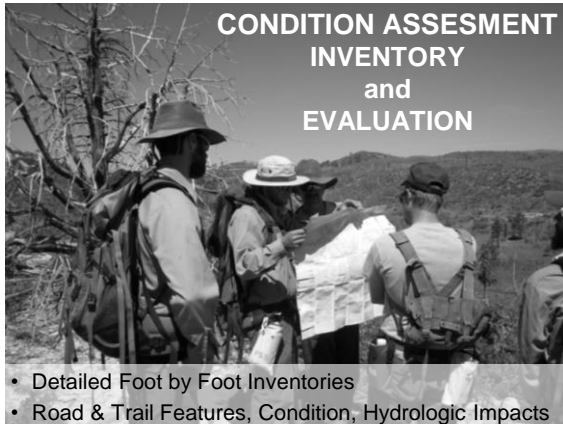| Road Facility Number	Length (ft)	Length (miles) Milage
Vehicle Bridges - Steel - Admin	131.18	0.02
339-C-2-04-5-00		
Roads - Public - Asphalt	17,299.12	3.28
339-C-1-01-1-001		
Roads - Public - Concrete	301.26	0.06
339-C-1-02-1-001		
Roads - Admin - Asphalt	5,356.18	1.01
339-C-1-01-2-001		
Roads - Admin - Concrete	129.51	0.02
339-C-1-02-2-001		
Roads - Admin - Gravel	7,053.04	1.34
339-C-1-04-2-001		
Roads - Admin - Native Material	16,761.78	3.17
339-C-1-05-2-001 Grand Total:	47,032.07	8.91

Segments Can be Assigned *"Transportation"* Layer Attributes

- All Facility Roads and Trails are Transportation Elements to the Public

- Road and Trails have Different Maintenance and Budget Needs to the Managing Agency

- A Dirt or Paved Road is Often a Trail Route Used by the Public

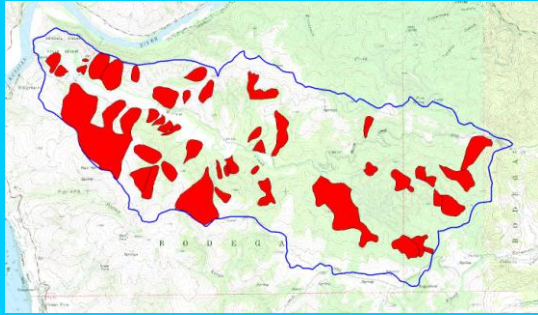- Some Trail Routes Have Multiple Names – Local Trail Name with Regional Trail Designation

Road or Trail Designation — TAHOMA

Legend:
- Roads
- Trails
- State Highway

Different Use Types — TAHOMA

Legend:
- Pedestrian
- Equestrian/Pedestrian
- Mountain Bike/Pedestrian
- All Users
- Park Road – All Users

Types of Construction — TAHOMA

Legend:
- Native Trail
- Asphalt Trail
- Native Road
- Gravel Road
- Asphalt Road

Trail Classification — TAHOMA

Legend:
- Class I Trail
- Class II Trail
- Class III Trail
- Public Use Road
- Administrative Road

Trails To Local Community

Trail To USFS Lands

Legend:
- Accessible Pedestrian Routes
- Non Accessible Routes

Dynamic Segmentation/Lineal Referencing and Value Assignment by Segment

- Park Staff Input Creates Two GIS Based Outcomes
  - A "Facility" Layer
    - Roads and Trails Grouped By Their Respective Classification and Facility Needs for Park Management
  - A "Transportation Layer"
    - Roads and Trails Represented by the Visitor Use and Regional System of Names regardless of Road or Trail Type
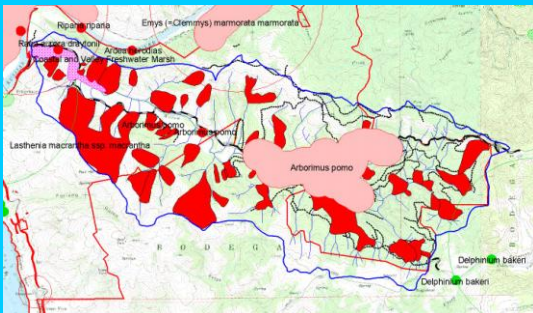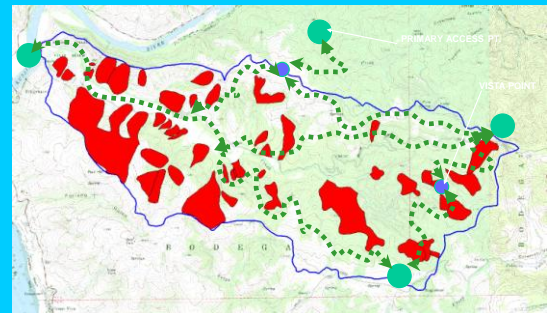
CONDITION ASSESMENT
INVENTORY
and
EVALUATION

- Detailed Foot by Foot Inventories
- Road & Trail Features, Condition, Hydrologic Impacts

Assigning Field Inventory Data

- Access Based Tough Book Recording

Field Inventory Data

This Inventory Data – Stored in GIS

Topographic Display

WATER COURSES

LANDSLIDES

LISTED PLANTS AND ANIMALS

COMPOSITE OVERLAY

ALLOWS EFFECTIVE DATA MANAGEMENT

What will Inventory, Treatment and Management Do?

- Organize Unit Roads and Trails

- Properly Classify and Assign Facility Numbers:
  - GIS Data Base of Accurate Inventory

What will Inventory, Treatment and Management Do?

- Identify:
  - What Users Types are Currently Assigned to the Unit's Roads and Trails
    - What Roads and Trails will They Share
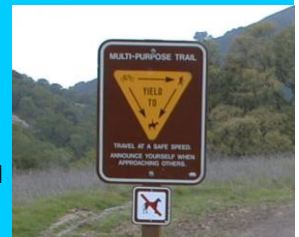
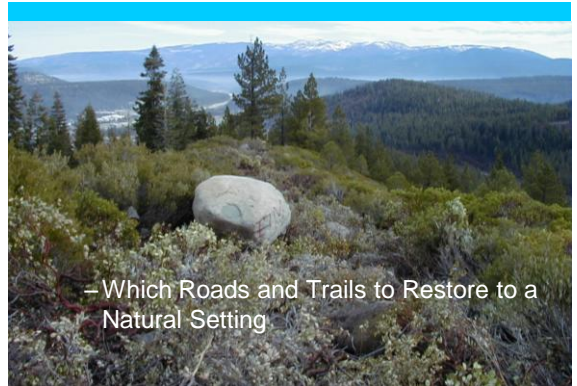- Orientate New Staff to Unit Road and Trail System

- Support Work Implementation Decisions
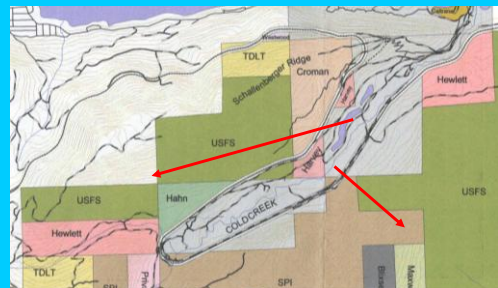

- Which Existing Roads and Trails to Keep

- Which Roads and Trails to Restore to a Natural Setting

- What Roads to Convert to Trails

- Help Develop Unit Road and Trail Plans

- Identify:
  - What Kind of Monitoring is Needed

Field Exercises Safety

Steep Hillsides
Loose Footing
Poison Oak
Water
Over exertion
Personal Items
Lunch

Hat
Boots
Long Pants
Ticks
Gloves
Day Pack